

REMARKS/ARGUMENT

Claims 7, 8, 10, 11, 14, 15, 22-27 and 29 are pending. Claims 24-27 and 29 are the independent claims.

Claims 7, 10, 14, 20, 22, 24-27 and 29 were rejected under 35 U.S.C. 103(a) over U.S. Patent 5,404,513 (Powers et al.) in view of U.S. Patent 6,633,879 B1 (Jeffries). Applicant submits that independent claims 24-27 and 29 are patentable for at least the following reasons.

Independent claim 24 is directed to a computerized method for controlling storage and retrieval of data in a memory device by constructing a data structure in which items of data are stored for search. The method comprises: a) forming an assumed tree structure in which all the items of data are stored; b) sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child nodes of the selected node; c) forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form; d) determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and e) when the selected sub-tree structure satisfies the one or more predetermined conditions, replacing the selected sub-tree structure with the equivalent table to construct the data structure. The predetermined conditions are that: 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

Powers et al. shows that in a summary tree, a summary node representing the same set of records may appear in several places of the tree, depending on the order of dimensions used to access it. Accordingly, by reducing from two different summary nodes having the same contents into a single summary node, the amount of memory can be reduced.

In the November 22, 2004 Request for Reconsideration Applicant pointed out that the position taken in the Office Action that Powers' technique, which eliminates redundancy, "implies an 'amount of memory required when replacing a node with a summary table is smaller than that required without the use of such replacing,'" and that an eliminated redundancy "could be used as a condition to determine the generation of summary node 120" is incorrect.

As was pointed out in the November 22, 2004 Request for Reconsideration, in Powers the *existence* of redundancy is the condition for deciding whether or not a single summary node is used to replace two summary nodes, and thus a determination along the lines of predetermined condition (1) in claim 24, would not and is not used as a condition, since elimination of redundancy will, by definition, *always* result in Powers in a data structure that requires less memory space.

In the continuation sheet attached to the Advisory Action mailed on December 9, 2004, the Examiner set forth reasons why the Examiner believed the above arguments are not persuasive. However, the analysis presented in that continuation sheet is based on certain incorrect assumptions, as will be discussed below.

In the continuation sheet, the Examiner took the position that the term "data structure" is used differently in different places in claim 24. In particular, the position was taken that the "data structure" recited in the determining step is "the tree and the table," while the "data structure" recited in the recitation of the two predetermined conditions is "the table itself."

This is not true. The "data structure" in each case refers to the entire tree with the table substituting for the sub-tree. This is to be contrasted with the recited "assumed tree structure," which refers to the tree as it would have been with sub-tree left in place. The foregoing is the manner in which "data structure" and "assumed tree structure" are used throughout the claims.

Due to the above-noted incorrect interpretation of the claim terms, the continuation sheet goes on to conclude that the recited predetermined condition (1) will always be met. This is incorrect. As is made clear in the specification, drawing and claims, it is possible that the substitution of the table for the sub-tree will not produce a data structure (including the equivalent table) that uses less memory than the assumed tree structure (in which all the items of data are stored) would have. Thus, the predetermined condition (1) is *not a certainty* in the present claims, as it would be in the Powers reference. Since it is not a certainty in the independent claims, the use of this predetermined condition (1) must be accorded patentable weight in any comparison with the prior art.

It is clear that based on the misinterpretation of the claims the Examiner did not accord patentable weight to the above-noted limitation, which does not appear in Powers. For at least this reason, no prima facie case of obviousness has been set forth.

Moreover, as is made clear from the above discussion of Powers, in Powers, there is no teaching or suggestion of determining whether the amount of memory required after replacing a node with a summary table is smaller than that required without the use of such replacing. In fact, making such a determination in Powers makes no sense, for the reasons discussed above. That is, an elimination of redundancy will always result in a data structure with a reduced size.

In contrast, the invention defined in claim 24 provides a criterion by which to determine which part of the tree should be replaced with the table. And, that criterion, including recited predetermined condition (1) as defined in the independent claims, is one that is not, and never would be, used in Powers. Further, there would have been no motivation whatsoever to have modified Powers to add steps of making a determination based on the recited criterion/condition, for the reasons delineated in the November 22, 2004 response.

For at least the foregoing reasons, claim 24 is believed clearly patentable over Powers et al. The other independent claims each recite features substantially similar to those

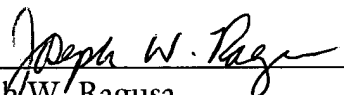
discussed above in connection with claim 24 and are believed to distinguish over Powers et al. for at least the same reasons.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

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Respectfully submitted,

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